Articles

Rehabilitation Services for the Pacific

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The Pacific Basin Rehabilitation Research and Training Center was created to help meet the challenges of rehabilitating people in rural remote communities in the United States-associated Pacific. We describe the center, the special region it serves, some of its many programs, and some of the ways it is helping communities in this region provide services that are appropriate and sensitive to the culture, the environment, and the disability.

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Culturally distinct groups of people, especially those in remote communities, have unique needs and present special challenges for providing medical and rehabilitation services. Island nations in the Pacific Basin are remote, rural, diverse, and therefore challenging.

Case Examples

Case 1

JP is from a small island in the complex of islands known as Chuuk (formerly Truk). In 1982, when he was 14, he fell off a waterfall and had a cervical spine injury that left him quadriplegic. He was air evacuated to Honolulu, Hawaii, and transferred to the Rehabilitation Hospital of the Pacific. The cost of his care was over $70,000, which represents a substantial portion of Pacific island community health budgets for an entire year. For example, in 1988 the health budget for the jurisdiction in which JP lived was $246,000.[1] Thus, the cost of his care was 28% of the entire health care budget.

The monetary cost represents only one of the many extraordinary costs involved, for social, familial, and personal costs were equally high. He was sent to a foreign environment—not just the hospital but Hawaii itself—where he spent more than a year thousands of miles from his support network of family and friends and away from familiar foods, language, and culture.

When JP finally returned home, he was an anomaly in his community, and it did not know how to respond. People tried to treat him as someone sick and dependent, but he felt neither sick nor dependent. In fact, during his stay at the rehabilitation hospital, he had been trained to be independent. When his family tried to comply with his desire for independence, the community judged his family as not fulfilling their responsibilities. All of this was further exacerbated when JP insisted on returning—alone—to his high school on another island. His behavior, and that of his family for allowing him to go despite their misgivings, was viewed by island neighbors as not being proper disability-related behavior. The patient's independent attitude itself was enough to make his neighbors uncomfortable because independence is often not understood by Pacific Islanders, who rely on and value interdependence.

Case 2

JR lives on another rural Pacific island, similar to that of the first case. Both are nearly the same age and have similar levels of injury and impairment. When JR dove off a bridge and injured his cervical spine in 1989, however, he did not have to leave his community for either acute or rehabilitation care. Because of important changes in the nation's ability to care for people with such injuries, including the presence of a trained rehabilitation technician, this patient's rehabilitation took place in a familiar environment.

The family, rather than nurses, provided much of his care. Family also provided his food, assisted with personal care, and stayed with him throughout his hospital course. From the time of his injury, JR's family was an important component of the rehabilitation effort; they were part of "the team." Supported by the wider community, they worked with the rehabilitation technician in meeting JR's health, social, and rehabilitation needs.

When he left the hospital, JR was unable to resume the usual activities of young men in his community—climbing coconut trees, farming, and fishing. A wheelchair shipped from Hawaii allowed him to move about the one western-style building with a cement floor in his household compound, but the rough terrain around his home restricted his mobility, and he was dependent on his family to carry him outside. Nevertheless, he was soon reintegrated into the household and took on the socially acceptable role of supervising the younger children, freeing others to do tasks he might have done.

Although an exact figure is not available, the cost of this patient's care was considerably less than that of the first case. One of the largest expenditures was for the wheelchair and the cost of shipping it.

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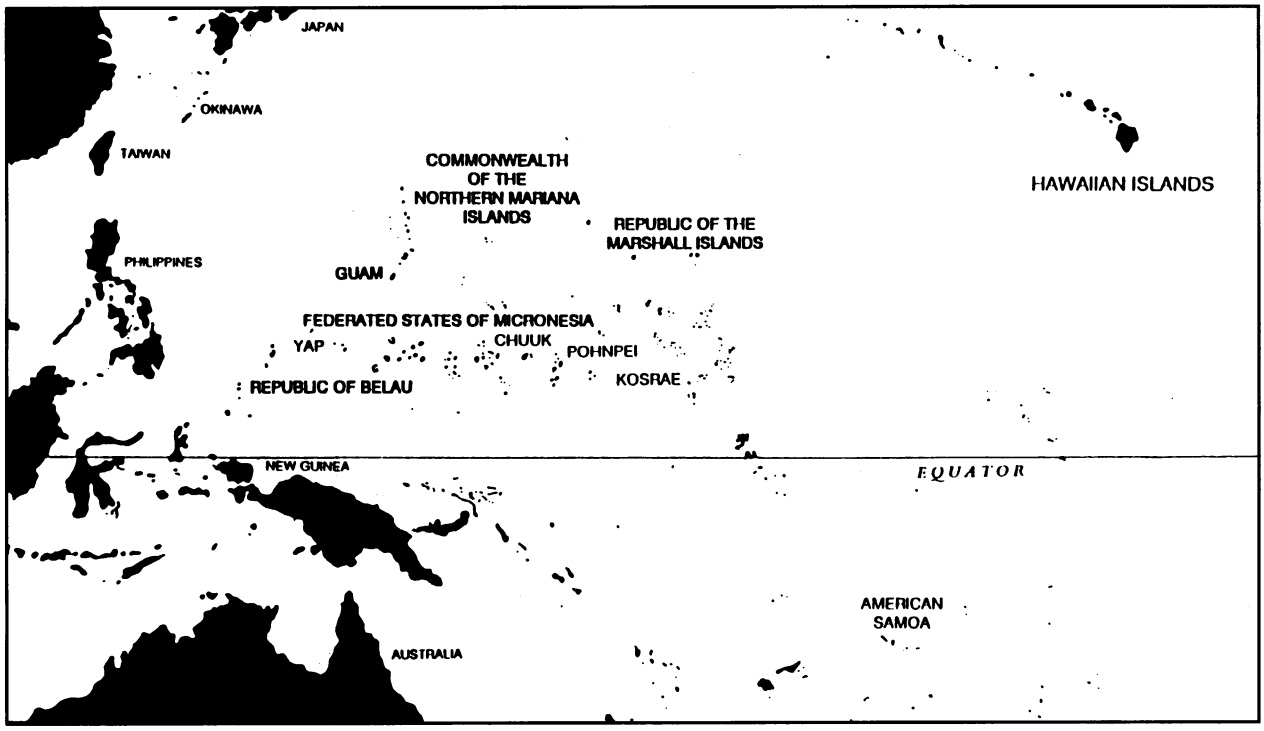

Figure 1.—The map shows the service area of the Pacific Basin Rehabilitation Research and Training Center.

How and why was such a dramatic change in the approach to rehabilitation possible? Providing rehabilitation services in the Pacific Basin encompasses three challenges: the communities are in rural or remote areas; the populations are diverse with differing needs; and services need to be culturally, environmentally, and disability-appropriate and sensitive. The Pacific Basin Rehabilitation Research and Training Center (PBRRTC) was designed specifically to help address these challenges.*

Pacific Service Area

The United States-associated Pacific Islands comprise Hawaii, American Samoa, Guam, and what was formerly known as the Trust Territory of the Pacific Islands. The area is as large as the continental United States, roughly 7.8 million km² (Figure 1). But unlike the US mainland, the region is composed almost entirely of water, which creates transportation and communication problems.

Sociodemographic Diversity

Diversity best describes the region—diversity in geography, population, demography, environment, and health needs and medical services. The population of about 1.5 million represents a varied group of Pacific, Asian, and European cultures spread over more than 100 inhabited islands ranging from tiny atolls barely above sea level to large, high volcanic islands.[2] Even adaptation to the tropical island and ocean environments—to heat, humidity, sandy and coral soils, and salt air—has not been uniform. Rather, many different housing, fishing, and agricultural forms have arisen.[2,3]

Divided into seven politically distinct units (Table 1),[4-7] all jurisdictions are a collectivity of islands, sometimes with far-flung outliers. All have culturally diverse populations, the most heterogeneous being in Hawaii, Guam, and the Northern Marianas. The other four political units are less culturally varied, being dominated by people of either Micronesian (Belau [formerly Palau], Federated States of Micronesia, Marshall Islands) or Polynesian (American Samoa) origin. At various times and locations, Spain, Germany, and Japan administered these islands until the United States took over, each leaving behind cultural vestiges.

There is great diversity in language; in Micronesia, for example, there are at least nine different languages. Most people are bilingual, and many are multilingual. English is the official language of government throughout the region.

The history, ecology, and social structure of each island group differ somewhat; nevertheless, similarities can be found in cultural values, beliefs, social organization, life course, and behavior.[2,3,8] Central themes of common importance are as follows: a great emphasis on family and community rather than on the individual; a strong, traditionally based system of social ranking, usually with men being more politically important than women; individual achievement and honor often tied to family rank, which in turn is tied to owning land.

The population size of most of these Pacific islands is

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TABLE 1.—*Sociodemographic Characteristics of United States-Associated Pacific Basin Countries, 1988 to 1990**

Jurisdiction	*Political Status*	*Ethnic Heritage*	*Land Mass, km²*	*Population*	*Population Density, /km²*	*Urban Population,† %*	*Annual Population Growth Rate, %*	*Adult Literacy Rate, %*	*Life Expectancy at Birth, yr*	*Crude Birth Rate, /1,000*	*Crude Death Rate, /1,000*	*Infant Mortality Rate, /1,000 live births*	*Rural Population With Safe Water, %*
Hawaii	US State	Polynesian, mixed	16,690	1,108,229	66.4	NA	NA	95‡	75‡	17.3‡	5.5‡	7.2‡	100
American Samoa	Territory	Polynesian	197	46,773	237.4	34	1.9§	NA	70§	29.7	4.3	8	NA
Guam	Territory	Micronesian, mixed	541	107,819	199.3	70	2.2	96	72	26.3	3.7	7.5	100
Northern Mariana Islands	Commonwealth	Micronesian, mixed	476	49,952	92.3	79	3	95	66	37.9	5.9	19	85
Marshall Islands	Republic	Micronesian	176	46,188	262.4	47	4	NA	61	49.2	3.6	63	NA
Belau (Palau)	Republic	Micronesian	494	15,122	30.6	62	1.4	75–85	66§	21.8	7.5	26	95
Federated States of Micronesia	Federation of States	Micronesian	686	103,723	151.2	23	1.8	50	58§	23.8	NA	18	60
Chuuk (Truk)	State FSM		127	48,000	378.0	--	--	--	--	--	--	--	--
Kosrae (Kusaie)	State FSM		100	7,000	70.0	--	--	--	--	--	--	--	--
Pohnpei (Ponape)	State FSM		345	28,000	81.2	--	--	--	--	--	--	--	--
Yap	State FSM		119	11,000	92.4	--	--	--	--	--	--	--	--

NA = [data] not available

*From Rotem and Dewdney, 1991.[4] †From Connell, 1987.[5] ‡From the Bureau of the Census, 1991.[6] §From Taylor et al, 1991.[7]

modest to small. In a few places with little land (Chuuk state, American Samoa), however, population densities are unexpectedly high (see Table 1). Some nations, such as the Federated States of Micronesia, have no huge, centralized urban center with commercial amenities or government services, whereas others, such as Guam, support modern cities. Some polities have both cities and remote, rural areas, such as Hawaii, where there are modern cities like Honolulu and areas like Molokai that are remote and underdeveloped. Some jurisdictions are strongly enmeshed in a cash economy (Hawaii), and others (the Marshall Islands) are based on subsistence agriculture and fishing.

Sociodemographic factors also indicate wide variations among Pacific communities, for example, in rates of natural increase, birth, death, and infant mortality; literacy; supply of safe water to rural villages; and life expectancy. For some communities, such as the Marshall Islands, the sociodemographic profile is similar to that of most underdeveloped nations, and others, such as Guam, compare favorably with mainland metropolitan areas (see Table 1).

Health Profiles

Country health profiles, medical and rehabilitation services, and resources are also diverse, as Table 2 shows.[4,6,9] These are relatively poor jurisdictions with small per capita health expenditures. Health indicators such as the leading causes of death and infant mortality rates vary considerably. Hawaii has a health and mortality profile similar to that of the US mainland, whereas the profiles for some other island groups (Federated States of Micronesia) are more like those of typical third world nations. Besides similar values, beliefs, and behaviors, these Pacific communities share expanding populations and increasing ill health.

Rehabilitation Services

The epidemiologic transitions[7,9,10] that have accompanied modernization in these communities have dramatically increased the need for rehabilitative services and disability prevention programs.[11,12] The prevalence of strokes, diabetes mellitus, injuries, chronic pain syndromes, and other potentially debilitating conditions is rapidly increasing—and dramatically so among younger age groups—40- to 50-year-olds are having strokes and 15- to 30-year-old men have high rates of suicide, homicide attempts, and traumatic injuries, especially from motor vehicles.[7-9]

Some communities, like Hawaii, have well-developed rehabilitation service systems comparable to most large mainland US cities. In other communities, however, rehabilitation service systems are modest in size and design. Kosrae (also called Kusaie), the most modest, for example, has one hospital run by the state, one rehabilitation technician, a Crippled Children's Service coordinator, and a geriatric home health care coordinator.[13]

Yet another commonality has a substantial effect on the provision of services. All these jurisdictions are asso-

ciated with the United States. This means that the service delivery models were generally introduced and are often maintained by professionals trained in the United States and that many of the programs are funded by the US government. An acceptance of federal funding is accompanied by the requirement to comply with federal mandates. Such mandates include rules, regulations, and guidelines generally developed by and for the American urban (generally white) middle class and thus are guided by their values and perceptions of needs and resources.

There is little reliable information on disability-related beliefs, practices, and attitudes of Pacific Islanders. People who have worked in the area generally agree that these differ considerably from those of the mainland United States and within the region itself. Cultural beliefs about illness, social relationships, and appropriate behavior, as well as island life-styles, clearly influence ideas and practices around disability. Consequently, it sometimes seems difficult or nearly impossible to provide culturally relevant, sensitive, and appropriate services while meeting US mandates.

This disjuncture between mainland and Pacific Islander ways of viewing and responding to disability and the failure of mainland models to adequately serve Pacific rehabilitation needs were recognized by officials in the island communities. Thus, they hired their own personnel and asked PBRRTC to devise guidelines and provide training for these rehabilitation technicians that was appropriate to Pacific social, cultural, and economic norms.

Pacific Basin Rehabilitation and Research Training Center

The PBRRTC is a community-oriented program affiliated with the John A. Burns School of Medicine at the University of Hawaii and housed at the Rehabilitation Hospital of the Pacific in Honolulu. It is one of 39 such centers funded by the US Department of Education's National Institute on Disability and Rehabilitation Research. Funded in 1984, PBRRTC is one of a small group of centers with a regional or minority group focus and the only one with a focus on the Pacific region. Most other centers deal with either a categorical disability (spinal cord injuries, stroke, and brain injury) or a disability-related issue (families and disability, or rural rehabilitation).

The goals of the center are "to improve services to individuals with handicaps through relevant research and training in the Pacific Basin and to assist in the coordination of rehabilitation services provided by a broad range of agencies and entities."[14] The center does not itself provide rehabilitation services. Its goals are accomplished through various research and training programs in cooperation with other agencies and the communities involved. The programs focus on training service professionals and on providing technical and research assistance to help communities identify rehabilitation needs and resources and develop culturally appropriate rehabilitation service delivery models.

TABLE 2.—*Health Profile and Health Economics of United States-Associated Pacific Basin Countries, 1989 to 1990**

Jurisdiction	Hospitals		Medical Officers		Health Budget			Proportional Mortality by Cause†					
	No.	No. of Beds (/1,000)	Total	Ratio/ Capita of Population	Total in millions, $US	Per Capita Expenses, $US	Portion of Total Budget, %	Infections, %	Cancer, %	Cardiovascular, %	Respiratory, %	Perinatal, %	External, %
Hawaii	26	4,000 (2.5)	2,493	1:445	NA	NA	NA	1‡	25‡	38‡	6‡	NA	7‡
American Samoa	1	117 (2.5)	25	1:1,871	NA	NA	NA	1	16	30	13	4	21
Guam	1	154 (1.2)	163	1:814	78.1	607	NA	1	23	37	4	4	12
Northern Mariana Islands	1	74 (1.95)	19	1:2,000	24.6	648	21	4	10	35	11	12	16
Marshall Islands	2	110 (2.38)	NA	NA	NA	NA	NA	14	12	17	9	20	8
Belau	1	60 (4.3)	11	1:1,273	2.3	153	10	5	18	27	13	10	19
Federated States of Micronesia	4	308 (3.1)	38	1:2,526	12.2	117	13.4	22	9	12	14	5	16
Chuuk§	1	125 (2.6)											
Kosrae§	1	35 (5.0)											
Pohnpei§	1	98 (3.5)											
Yap§	1	50 (4.5)											

NA = [data] not available

*From Rotem and Dewdney, 1991.[4]
†From Taylor et al, 1989.[3]
‡From the Bureau of the Census, 1991.[5]
§From the Pacific Island Health Officers' Association Maternal and Child Health Strategy Data Base, Region IX US Public Health Service and World Health Organization Country Health Information Profile (written communication, June 1992).

For example, PBRRTC provides technical assistance to the State of Hawaii's Department of Vocational Rehabilitation in needs assessment research and is working with Hawaii's Department of Health investigating injuries. Research projects with Hawaii's Rehabilitation Hospital include such things as aging with a disability (such as from late effects of polio) and hip fractures among older adults. The center also provides planning and financial support for educational programs, gives seminars on Pacific Basin rehabilitation needs and activities, and acts as a general resource center for people providing services to Pacific Islanders.

While the Hawaii projects are important, PBRRTC's efforts are most distinctive in other parts of the region and more clearly driven by cultural issues. Outside Hawaii, for the most part, PBRRTC's efforts are divided between departments of health and the departments of vocational rehabilitation in those areas that still have federally funded vocational rehabilitation programs, such as Guam, Northern Marianas, Belau, and American Samoa.

One of PBRRTC's primary programs is the training of rehabilitation technicians.[15,16] Indigenous personnel are trained to provide technically competent and culturally appropriate rehabilitation services in their home communities. Before this program, many of the smaller communities had no trained rehabilitation service professionals. Thus people often either received no rehabilitation services or—like case 1—were transported off-island, usually to Hawaii, at great expense.

Rehabilitation Technician Training

There are now ten rehabilitation technicians serving their communities— 2 each in American Samoa, the Marshall Islands, and Yap state; 1 in Belau; and 1 in each of the other states of the Federated States of Micronesia. Altogether, they care for about 1,300 people a year ranging in age from 2 months to 93 years, and they provide roughly 12,000 treatment sessions.[16] Such numbers underestimate the benefits of this program, however, because much of their work is done informally, especially in raising community awareness and in teaching family members to care for a rehabilitation patient—as in case 2.

Although most of the work of these technicians constitutes physical therapy, they are more broadly trained because PBRRTC staff represent many health-related professions—occupational and physical therapy, nursing, and social work. Because many PBRRTC staff have experience working with Pacific Islanders and are aware of the special cultural and environmental factors associated with these populations, they have been able to translate their formal training into skills and concepts useful in an atoll or island setting.

Most rehabilitation technician training takes place within the community on a one-to-one basis. Once a year, however, the technicians are brought together as a group to undertake additional training. Some traditional classroom sessions occur, but observational and experiential learning is the hallmark of the training program as this is more consistent with the traditional learning style of Pacific Islanders. Training is directed toward individual trainees' needs and the special needs of their community and patients.

Although the rehabilitation technician training program is financed with US federal funds, the technicians are under the jurisdiction of their local governments and, therefore, do not have to conform to federal mandates—unlike vocational rehabilitation counselors and other rehabilitation service professionals funded directly by the US government. This independence allows the technicians (with the assistance of PBRRTC staff) the latitude to translate skills and knowledge into culturally meaningful and appropriate services.

Culturally Appropriate Services

In Guam and Saipan in the Northern Marianas, which are undergoing rapid development in response to the tourist industry, unemployment is low. But in more rural, remote communities (like the island of Molokai in Hawaii, or Belau or Kosrae), there are few cash-paying positions and many applicants. In these remote communities, productive activity more often centers on family enterprises, usually farming, fishing, and, occasionally, small retail stores. Narrowly defined, a homemaker closure means that at the end of the technician's involvement, the client's principal activity is keeping house or working as an unpaid family worker in a family enterprise such as a farm or a business. Thus, the number of cases with "homemaker" closures, viewed by some rehabilitative workers as a low status closure, may be high by urban, US standards, but is entirely appropriate by island standards.

Some Pacific island vocational rehabilitation expenditures are unusual by the standards of mainland Americans, such as the purchase of a machete or of a piglet and some feed. These items allow rural Pacific Islanders to make major contributions to their family's welfare, as a machete is essential for island farming and harvesting from the bush, and pigs are not only a source of food, they have great symbolic value. Being able to raise large pigs, especially for ceremonial purposes, is highly prized and can elevate a person's status within the community. Likewise, the purchase of a boat for a client living on an island not only provides an opportunity for him or her to engage in subsistence fishing, perhaps even catching enough excess to sell a few at market, it also provides transportation to other job opportunities and to services such as health care. Mainland Americans need to be aware that people other than the client will use this boat. It would be culturally unacceptable for a Pacific Islander to refuse to loan a boat, especially to family or close kin. When the client is in a position to share a precious resource, he or she can make a substantial and culturally appropriate contribution to family and community welfare that in turn reinforces that person's role and status as a capable, productive adult. This kind of community and familial orientation of values and activities may seem alien to people from a society that values independence, but becoming

aware of such values is critical to developing and providing culturally relevant and appropriate training and services to Pacific Islanders.

Conclusion

Rehabilitation service delivery models, standards of care, and regulations developed for one population are not always appropriate for other groups. There is a growing awareness of the need for cultural awareness and sensitivity, but there is still little information on how to incorporate these into the development and provision of health and rehabilitation services.

This brief description of the Pacific Basin Rehabilitation Research and Training Center and some of its programs shows how one organization is helping communities serve the needs of people with disabilities in a culturally meaningful way. While this organization's focus is the Pacific Basin, other rural communities and culturally distinct populations within mainland America, such as American Indians, have similar needs for culturally appropriate and sensitive rehabilitation services. Providing services in rural, remote communities is a special challenge that requires new, creative, and flexible approaches. Many of PBRRTC's programs can serve as models to be adapted for use elsewhere.

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